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INTERNATIONAL TRADE UNDER DEPRECIATED PAPER. THE UNITED STATES, 1862-79

SUMMARY

I. The greenback currency period affords a favorable opportunity for a statistical investigation of international trade under depreciated paper. — This investigation to be correlated with recently advanced theory, 221. — II. The international account of the United States from 1862 to 1879, 230. — III. Contrast of changes in the value of gold in the United States with contemporaneous changes in foreign countries, 235. — Dependence of these changes on international loans, 241. — IV. Fluctuations in the merchandise balance and the relation of these to loans and the value of gold, 245. — V. Comparative prices of export, import and domestic commodities and their relation to fluctuations in the value of gold, 249. — Contrast with English prices, 258. — VI. Comparison of wages in industries affected by movements in the value of gold with those unaffected by such movements, 265. — VII. Conclusion, 272.

I. THE PROBLEM

THIS article presents the results of a statistical study of prices in the United States in the greenback period, 1862-79. The purpose of the study was to subject to an inductive test the theory of international trade under depreciated paper advanced by Professor Taussig in the issue of this Journal for May, 1917.¹ In developing his theory Professor Taussig assumed hypothetical conditions such as were actually realized to a very considerable degree in the international trade of the United States from 1862 to 1879, when the inconvertible greenbacks were the basis of our monetary system. A favorable opportunity was thus presented for submitting the

1. "International Trade Under Depreciated Paper. A Contribution to Theory," *Quarterly Journal of Economics*, vol. xxxi, No. 3, pp. 380 et seq.

theory to the test of historical data. The price statistics available for the study were good, and were gathered in convenient form in Wesley C. Mitchell's book on *Gold, Wages, and Prices Under the Greenback Standard*. Other necessary statistics were derived from the Reports on Commerce and Navigation and the reports of the Secretary of the Treasury for the period covered by the study.

The problem is this: by what means and in what manner is equilibrium of payments maintained in the course of international trade between countries one of which is on an inconvertible paper monetary basis; or, having been disturbed, by what means and in what manner is equilibrium again restored? In such a case equilibrium cannot be established by the flow of gold hither and yon in the way made familiar by the classical theory of international trade. Professor Taussig suggests that under inconvertible paper it is attained by a shifting in the commodity side of the price equation in lieu of a shifting in the money side. The ultimate adjustment is reached through a series of transitional price changes, affecting in contrasting ways export, import and domestic commodities, and operating to increase or decrease the aggregate of commodities exchanged within the country, and as a consequence, lowering or raising the whole price level to a point which will maintain equilibrium.

The method and sequence of events leading up to this consummation may perhaps best be illustrated by means of the example used in the original exposition. Assume that the trade between two countries, Great Britain and the United States, is simple (that is, a trade in commodity merchandise only) and is at equilibrium, the specie value of the imports balancing the specie value of the exports; that Great Britain has a gold monetary standard while the United States is using an inconvertible

paper currency; that the premium on gold in the United States measures the real depreciation of its paper as shown by the advance in general prices beyond the level at which they would be under a gold standard; that a settled state of trade exists; that this settled state is then disturbed through heavy and continuous borrowing by the United States in Great Britain.

The train of effects to be expected upon this disturbance would be, in the United States, as follows:

A. Immediate effects:

(1) Increased demand for New York exchange in London, increased supply of sterling exchange in New York.

(2) Fall in sterling exchange in New York.

(3) Fall in the specie premium in the United States. Sterling exchange is, in the circumstances, equivalent to gold, and sterling exchange and the gold premium will fluctuate together.

(4) Fall in the (paper) prices of exported commodities. The prices of these commodities are set in foreign markets in gold. The premium on gold having fallen the (paper) prices of exports must fall with it.

(5) Lowered cost (in U. S. paper) of imported commodities. These are bought in foreign markets for gold (or its equivalent) and it takes less of the paper currency than formerly to buy the same amount of gold and therefore of imported commodities.

(6) Fall of the specie premium as compared with the general price level. In the stage of equilibrium assumed at the outset, the specie premium would have been in accord with the real depreciation of the currency which, in fact, it measured. It is now less. The prices (in paper) of exported commodities have also fallen as compared with the general price level. The same is true of the prices (paper) paid for imported commodities.

B. Transitional effects:

(1) Exporting industries are unprosperous: exports tend to decline as a consequence of lower sale prices (paper).

(2) Importing industries are prosperous: imports tend to increase as a consequence of lower cost prices (paper).

(3) Export trades tend to cultivate the home market, more domestic commodities are made and a larger share of exportable commodities is used and bought at home: import trades develop and more imported commodities come in. The upshot is an increase in the total volume of commodities bought and sold in the United States.

C. Ultimate effects:

(1) A fall in general prices in the United States. The volume of commodities has increased, the money supply (assuming that there have been no new issues of paper) is unchanged: general prices will therefore fall. Even tho the paper money has increased in volume, there will be a fall in general prices relative to the price of gold.

(2) A gain to the people of the United States through lower prices of both domestic and imported goods, money incomes remaining the same throughout.

The course and causes of equilibrating movements with one of the countries on an inconvertible paper monetary basis are distinctly different from those which would obtain if both countries were on a gold basis; the ultimate effects, while different in form, are in substance very much the same.

The resemblances and differences will be evident on a comparison of the sequences of events to be expected under a gold and under a paper régime respectively, a comparison presented in parallel columns herewith.

Sequence of events in the United States when —

Both countries are on a gold basis

- (1) Sterling exchange falls in New York; New York exchange rises in London.
- (2) Influx of gold from Great Britain.
- (3) General prices rise, while they fall in Great Britain.
- (4) Exports decrease: imports increase.
- (5) Equilibrium restored: General prices higher (if it is assumed that the import of gold has been proportionately greater than the consequent increase in the importation of commodities).
- (6) Money incomes higher, prices of imported goods lower. The people of the U. S. gain as buyers of imported commodities. The terms of international trade have shifted in their favor.

The U. S. is on an inconvertible paper basis

- (1) Sterling exchange falls in New York; New York exchange rises in London.
- (2) The gold premium (in terms of United States currency) falls as compared with the general price level.
- (3) Fall in the (paper) prices obtained for exports: imports obtained more cheaply (in United States currency).
- (4) Exports decrease: imports increase.
- (5) Equilibrium restored (with exchange on a new level). General prices lower (if it is assumed that there have been no new issues of paper money).
- (6) Money incomes the same; general prices lower. The people of the United States gain as buyers of both imported and domestic commodities. The terms of international trade have shifted in their favor.

With both countries on a gold basis, adjustment toward an equilibrium of the international account is reached by a movement of gold affecting *all* prices; when one country is on an inconvertible paper basis this adjustment takes place, independently of any gold movement, by means of a price adjustment effected by a change in the commodity rather than in the money side of the price equation, this change itself being brought about by movements in foreign exchange which

affect the prices of export, import, and domestic commodities in different ways.

Many of the conditions assumed in the exposition of the theory were actually present in the period from 1862 to 1879. Thus Great Britain was throughout the period upon a gold basis while the United States was using inconvertible paper money. From 1863 to 1874 the United States borrowed heavily and continuously in Great Britain. Other conditions of the hypothesis were largely realized by 1866, when the disturbances caused by the Civil War began to subside. The premium on gold, which during the war had been greater than the general advance in prices, fell rapidly, and late in 1865 reached the level of general prices and measured fairly the real depreciation of the currency. The liquidation brought about by the war tended to simplify international trade and to reduce the complexities which accompany credit operations, so that a state of external trade as "settled" as is ever likely to occur under modern conditions was probably realized in the year or two succeeding the signing of peace in 1865. External trade at this time was simple, composed largely of merchandise (including gold and silver, which are "merchandise" to a country with an inconvertible paper monetary system), while exports and imports approximately balanced each other. The transactions which come under the head of merchandise amounted, in specie values, in the year ending June 30, 1865, to \$265,000,000 of imports and \$245,000,000 of exports; while for 1866 the figures are \$477,000,000 and \$450,000,000 respectively.

For the whole period 1862-79, the items of importance for the present purpose entering into the international account of the United States may be grouped as follows: (1) commodity exports and imports; (2)

gold and silver coin and bullion movements; (3) freight payments; (4) sales of ships; (5) loans; (6) interest payments and repayment of loans. Such items as rents, wages, profits, expenditures of tourists, remittances to relatives, the capital of immigrants, insurance, and services of various sorts, proved on investigation either to be offset by counterclaims of the same sort or to offset each other, or were so small as to be negligible. Of the six enumerated important factors in the situation, the fifth, loans, was introduced during the period studied, and eventually in such volume as to dominate the situation. With no other factor can one correlate the shifts in the balance of merchandise (including gold and silver) from a slight annual excess of exports prior to and during the early years of the war, to a very considerable annual excess of imports in the decade 1864 to 1873 (one year excepted), and back again to a large annual excess of exports from 1873 onward. On the other hand the trade movement does correlate closely with this factor of loans. Borrowing on a large scale was initiated in 1863 and severely checked after the panic of 1873. The period as a whole thus presents for consideration and comparison two contrasting situations, in one of which a new factor, borrowing, causes a disturbance of a preëxisting equilibrium, sets in motion equilibrating forces, and is suddenly interrupted to bring about the converse situation, in which the equilibrating forces are evoked by the practical cessation of the borrowing as contrasted with its initiation. The new situation may, therefore, be expected to show the reverse movement to that which appeared in the preceding stage. If it be found that the actual results in the former of the two situations are such as the theory would lead us to expect, such evidence of the validity of the theory as this affords will be immensely strengthened if the results are neutralized

or reversed in the latter. Our problem is to present and compare with theoretical expectation these actual results, the whole situation being brought always to the factor of loans as the touchstone.

A further word of explanation is desirable concerning the differences between the short-range and long-range phenomena. In the period from 1863 to 1873 the immediate, the transitional, and the ultimate effects of borrowing were being worked out synchronously. On the other hand, the cessation of borrowing and the increasing scale of repayment of loans from 1874 to 1878 were evoking, synchronously, just the converse immediate, transitional and ultimate effects. Moreover these several effects in either period tend in some degree to neutralize each other.

Thus the short-range effect of a large new loan placed by the United States in Great Britain is (by its influence upon the exchanges and its tendency to depress the gold premium in the United States) to make imports cheap (in terms of paper currency), and so stimulate imports from Great Britain into the United States; but the long-range effect of increased imports from Great Britain into the United States is to raise prices in Great Britain and to lower them in the United States, and so set up a counter tendency in the movement of merchandise.

The immediate effect of the loan is, again, to lower in the United States the (paper) prices of export commodities, since their price is set in the foreign market in gold and the same amount of gold will be represented by a smaller amount of the paper currency than before the fall in the gold premium. The (paper) prices to consumers of commodities imported into the United States will, as shown above, also fall as a result of the loans, tho less quickly than will the prices of export commodities. The reason for this laggard fall in the prices of imports

is that while imports are obtained at immediately cheaper prices by importers, it takes time for competition to work out its effects in lower prices to consumers, and so the paper prices of import commodities will not respond as rapidly to a change in the gold premium as will those of export commodities, which are affected immediately.

The (paper) prices of import and export commodities having fallen, the prices of domestic commodities will be relatively high. This will hold during the short-range and early transitional periods. But the ultimate effect in the United States is a lowering of all prices, and the prices of domestic commodities, which have been hitherto relatively high, will now tend to fall at a more rapid rate than the prices of export and import commodities, and this effect may even appear as a rise in the prices of the latter.

When, then, borrowing is continued over a long period, the long-range or ultimate effects of the borrowing of former years are working themselves out at the same time as are the short-range effects of borrowing operations only shortly before consummated, and these effects tend to neutralize each other. It is always a question which is the dominant factor. But long-range or ultimate tendencies are disturbed by so many newly-arising phenomena of every sort that their effects can seldom be traced with precision, and the attempt to do so is almost certain to be unsuccessful. On the other hand, short-range effects offer a much more hopeful field, since cause and effect can be more accurately associated and the influence of disturbing factors can be more readily obviated in a short than in a long period.

Whenever, in the period here studied, the scale of borrowings is increased largely, the short-range effects may be expected to dominate the situation for the time being;

whenever borrowings are maintained at an unaccelerated rate the long-range effects are likely to come strongly into play, more especially as the immediate effects of increasing interest payments tend to neutralize the short-range effects of the borrowing operations in the same manner as do the ultimate effects of these borrowings.

When borrowing ceases, and especially when repayment begins, exactly the reverse processes of course tend to establish themselves. It is unnecessary to trace these in exact detail, one simply needs to substitute the effect opposite to that already presented here.

In such a period as that of 1862-79 short-range effects might be expected to be prominent, and ordinarily predominant, since these years were broken in such a way as to present a peculiarly favorable opportunity for the operation of short-range tendencies. Borrowing began on a large scale in 1863 and was maintained for about five years at about the same rate. In 1868-69 it was very largely increased, so that just when the long-range effects might be expected to become dominant short-range effects were given a new impetus. In 1873 occurred a panic, a complete shift in the merchandise balance of the United States, and the relative cessation of borrowing. This just reversed former conditions and again gave predominant importance to short-range effects. Thus throughout the whole period the long-range effects would probably just be beginning to dominate the situation at the end of each of the three stages 1863-68, 1868-73, 1873-78, when their influence would be overthrown by the phenomena of the period succeeding them, whereas transitional effects would be the dominating factor practically throughout, being gradually modified and counteracted, as each period wore on, by the functioning of the long-range forces.

For this reason attention has been largely concentrated on transitional effects. Ultimate effects will be noted only on those dates at the close of the stages above indicated when they may be expected to be dominant.

II. THE TRADE BALANCE, 1862-79

Interpretation of the international trade situation from 1862 to 1879 requires first a knowledge of what that situation was. The table on page 231 presents this situation in the form of an international balance sheet, showing merchandise exports and imports, gold and silver coin and bullion movements, freights payable and receivable, sales of ships, net interest payments and repayment of loans. These, as has been pointed out, are the significant items for the period studied. No data exist adequate to permit of even a reasonable conjecture on the quantitative importance of other items; but since such evidence as is available goes to show that the debits and credits of these items of minor importance approximately balanced each other, it seemed best to omit them altogether.

The balance sheet shows:

(1) An approximate balance of total debits and credits, independently ascertained, for the whole period 1860-78. This goes to show that any items omitted were of negligible importance.

(2) After the war years, a tendency appears toward the extinction of a debit or credit balance running a year or two, by a balance of the opposite complexion, lasting for a similar short period only. This means that unsecured credits for any lengthy period were not granted by either party to the international exchange.

(1) and (2) together are evidence of the effectiveness of the equilibrating forces.

INTERNATIONAL TRADE BALANCE SHEET (SPECIE VALUES IN THOUSANDS OF DOLLARS)²

UNITED STATES IN ACCOUNT WITH FOREIGN NATIONS

Dr.

Cr.

Year ending June 30	Merchandise imports	Gold and silver specie and bullion imports	Freights payable	Net interest payments	Repayments on loans	Total debits	Merchandise exports	Gold and silver specie and bullion exports	Freights receivable	Sales of ships	Loans floated	Total credits
1860	\$353,616	\$8,550	\$13,400	\$18,000	....	\$393,566	\$333,575	\$66,545	\$27,908	....	\$15,000	\$443,028
1861	289,310	46,339	13,410	18,000	....	367,059	219,553	29,790	17,997	....	10,000	277,340
1862	189,356	16,415	11,349	15,000	\$25,000	257,120	190,670	36,886	12,418	\$4,710	....	244,684
1863	243,335	9,584	14,317	12,000	25,000	304,236	203,963	64,156	9,860	8,885	....	286,864
1864	316,447	13,115	24,835	15,000	....	369,397	158,837	105,395	6,724	12,034	80,000	362,990
1865	238,745	9,810	17,417	24,000	....	289,972	166,029	69,643	4,956	5,333	75,000	320,961
1866	434,812	10,700	32,247	30,000	....	507,759	348,859	86,043	15,433	....	70,000	520,385
1867	395,761	22,070	30,062	36,000	....	483,893	294,505	60,868	13,079	....	74,000	442,452
1868	357,436	14,188	24,865	42,000	....	437,489	281,951	93,783	12,868	....	76,000	464,602
1869	417,506	19,807	30,051	52,000	7,418	526,782	286,117	57,137	11,429	....	129,500	484,183
1870	435,958	26,419	30,914	61,000	15,240	569,531	392,771	58,154	16,506	....	145,000	612,421
1871	520,223	21,270	36,302	67,000	16,166	660,961	442,819	98,441	17,151	....	116,400	674,811
1872	626,595	13,743	44,541	72,000	14,994	771,873	444,177	79,877	15,139	....	127,400	676,593
1873	642,136	21,480	47,180	78,000	2,815	791,601	522,479	84,608	15,479	....	147,600	769,736
1874	567,406	28,454	40,532	60,000	....	696,392	586,282	66,629	15,713	....	51,000	719,624
1875	533,005	20,900	38,294	63,000	....	655,199	513,442	92,132	13,962	....	20,200	649,736
1876	460,741	15,936	32,113	60,000	50,000	618,790	540,384	56,505	14,839	....	....	611,728
1877	451,323	40,774	32,956	55,000	100,000	680,053	602,474	56,161	15,404	....	....	674,039
1878	437,051	38,437	30,749	45,000	150,000	701,237	694,865	33,739	16,318	....	....	744,922

Grand Total.....\$10,082,910

\$9,981,099

2. This balance sheet, the basis of the study, was prepared after a comprehensive examination of sources. All figures are in gold values. Paper prices, where they occurred in the statistics, were reduced to their gold equivalents at the rate of premium on gold prevailing at the period which the quotation covers. Quotations of merchandise and of specie and bullion exports and imports are based on government sta-

tistics, and the figures on sales of ships are derived from government reports. All other figures are estimates computed from unofficial sources such as the Commercial and Financial Chronicle, Bankers' Magazine, London Economist. Each set of figures has been determined quite independently of any other.

(3) The trade in merchandise is sharply divisible into two contrasting periods preceded by a third — the early war period. This early period will be ignored as too disturbed by incalculable factors to permit of significant inferences. The two later and more significant periods which will henceforth be designated Period A and Period B, the one extending from 1864 to 1873 and the other from 1874 to 1878, show respectively a large and consistent annual excess of merchandise *imports* averaging about \$105,000,000 during Period A, and a large and consistent annual excess of merchandise *exports* (after a two-year transition interval in 1874 and 1875 when merchandise exports and imports approximately balanced), averaging about \$163,000,000 during Period B.

(4) During the period of heavy borrowing the net export of gold was large. This was to be expected, inasmuch as the borrowing tended to depress the premium on gold and thus to make it relatively cheap. Note that just the opposite trend would be expected under a gold régime. A reverse movement in the precious metals appears in 1877 and 1878. This movement corresponded with an appreciation in the value of gold which brought it up to and beyond the general level of prices for the first time since 1865.

(5) There was heavy selling of ships in 1862, 1863, 1864, and 1865. By 1863 the effect on the earnings of freighters was to change that item of the international account from a credit to a debit, amounting in the years of large imports to a net of about \$25,000,000, and falling to about \$15,000,000, when exports began greatly to exceed imports, for then the bulk of the freight charges began to fall on the foreign importers, who paid them to foreign carriers, the item consequently not appearing in the international balance sheet.

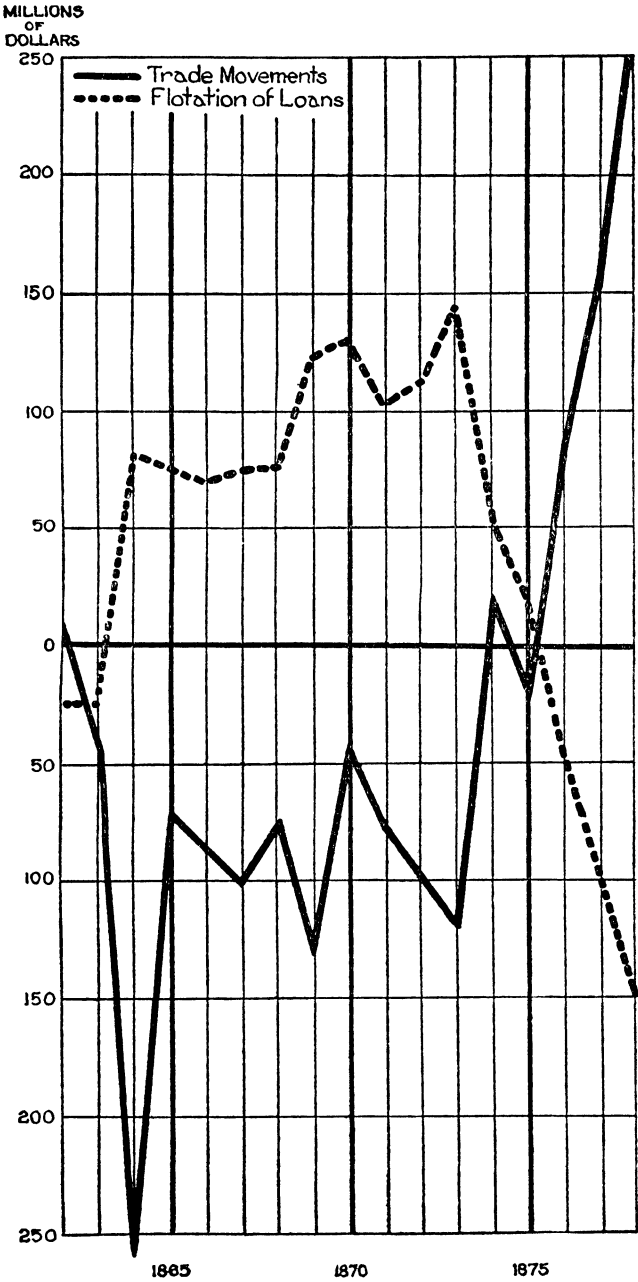
(6) As compared with the period before 1860, there is

an increase in the period 1864-73 in the debits of the United States, both on merchandise account and on freight payments. From 1873 to 1878 the merchandise debit shifts to a credit, the export and import of precious metals tend to converge, while freight payments remain a reduced debit, the net effect being to change a large debit balance on these items in the earlier period into a large credit balance in the later.

(7) The makeweight in these vicissitudes is the factor of loans, the balance on financial account tending to offset the balance on commercial account. Thus large loans were placed by the United States in Europe in 1863, and the merchandise exports of the year ending June 30, 1864 exceeded merchandise imports of that year by the unprecedented sum of \$157,000,000, being almost exactly double the value of the exports. And so throughout, till 1873. Large loans and a large excess of merchandise imports go together. Loans were so sharply curtailed after 1873 that they cease to be significant as a credit, and a little later the movement of securities begins to be reversed. By 1876 they are being reimported into the United States, thus inversely corresponding with the coincident change in merchandise account which was now showing a large excess of merchandise exports.

The chart on page 234 brings out clearly the close correlation of merchandise movements and the borrowing operations.^{2a} The merchandise movements were of course a function of prices, prices of goods entering into international trade hung on the value of gold, and the value of gold (in terms of greenbacks) was affected by the borrowing operations. The next step, therefore, is to investigate movements in the value of gold.

2a. The black line represents the balance of trade on merchandise account, excess of imports being shown below the zero line and excess of exports above it. The dotted line represents the movement of securities, excess of borrowing being shown above the zero line, excess of repayments below it.



III. THE VALUE OF GOLD IN THE UNITED STATES AND IN FOREIGN COUNTRIES

The first effect to be expected as a result of the large borrowings inaugurated by the United States in 1863 was an increased offering of sterling bills in the New York market, with a consequent fall of sterling exchange in New York. The American securities sold steadily in Europe from 1863 to 1873 tended to depress sterling exchange in New York, and continued to do so until a new adjustment of trade should be reached, the balance being again restored by an increase in imports relatively to exports. Preventing any such restoration of equilibrium were the recurring large new borrowings. One would therefore expect sterling exchange in New York in this period to be pretty constantly depressed. Sterling exchange being depressed in price, its equivalent, gold, would be depressed also. Since gold was a merchandise commodity in the United States during the paper régime, one would expect, from this depression, that its price in the paper currency of the day would be lower than the index number of commodity prices in general, relative, at any rate, to its price under a similar comparison made previous to the borrowing operations.

After borrowing had been severely curtailed following the panic in the fall of 1873, had practically ceased a year or two later, and repayment of loans had begun, the opposite movement in the value of gold is the expectation of theory; the value of gold ought to rise from a point below that of general commodity prices to some point above it.

Further, if any movement which appears in the value of gold is to be attributed to the borrowing operations and to nothing else, a comparison of its movement in the

United States with that of its movement in other countries must be instituted, for the purpose of seeing whether such movement in the United States was peculiar to this country and thus attributable to the special factor of loans.

The remainder of the present section will be devoted to an investigation of the actual movement of the price of gold as compared with the price of commodities in general in the United States, and to a comparison between the movements in the value of gold in the United States, thus shown, with its value in the two foreign countries most important in the international trade of the United States at the time — England and Germany.

The exhibit, Table A on page 237, presents the movements in the price of gold in the greenback currency, in contrast with the index number (median) of commodities in general in the United States.

Comparing the price of gold with the index number of general commodity prices in the United States, as shown in Table A, the following significant facts appear.

(1) From April, 1865³ till July, 1876, the quarterly average price of gold is *lower* than the index number for commodities in general.

(2) From July, 1876 to the end of the period (with two exceptions, January and April, 1877), the quarterly average price of gold is *higher* than that of commodities in general.

(3) After 1874 there is a *relative* rise in the price of gold.

(4) The most rapid fall in the price of gold (the period before April, 1865 being ignored) appears in the year October, 1869 to October, 1870. Reference to the table

3. Conditions before this date were, of course, dominated by the fact that war prevailed and are, therefore, too disturbed to form a satisfactory basis for any inferences applicable to our purpose. Therefore, 1866 is taken as the originating year throughout this study.

TABLE A. AVERAGE PRICE OF GOLD AND THE MEDIAN PRICE OF
COMMODITIES IN GENERAL IN THE UNITED STATES
1862-79

Year	Month	Av. price of gold	Median price of commod- ities	Year	Month	Av. price of gold	Median price of commod- ities
1862	Jan.	102.5	100	1871	Jan.	110.7	133
"	Apr.	101.5	100	"	Apr.	110.6	131
"	Jul.	115.5	100	"	Jul.	112.4	130
"	Oct.	128.5	111	"	Oct.	113.2	129
1863	Jan.	145.1	125	1872	Jan.	109.1	133
"	Apr.	151.5	137	"	Apr.	111.1	140
"	Jul.	130.6	134	"	Jul.	114.3	130
"	Oct.	147.7	135	"	Oct.	113.2	133
1864	Jan.	155.5	156	1873	Jan.	112.7	135
"	Apr.	172.7	169	"	Apr.	117.8	137
"	Jul.	258.1	194	"	Jul.	115.7	130
"	Oct.	207.2	200	"	Oct.	108.9	131
1865	Jan.	216.2	216	1874	Jan.	111.4	130
"	Apr.	148.5	190	"	Apr.	113.4	129
"	Jul.	142.1	158	"	Jul.	110.0	130
"	Oct.	145.5	175	"	Oct.	110.0	130
1866	Jan.	140.1	182	1875	Jan.	112.5	127
"	Apr.	127.3	173	"	Apr.	114.8	125
"	Jul.	151.6	181	"	Jul.	114.8	121
"	Oct.	148.3	173	"	Oct.	116.4	120
1867	Jan.	134.6	169	1876	Jan.	112.8	117
"	Apr.	135.6	166	"	Apr.	113.0	115
"	Jul.	139.4	150	"	Jul.	111.9	110
"	Oct.	143.5	162	"	Oct.	109.7	108
1868	Jan.	138.5	158	1877	Jan.	106.3	114
"	Apr.	138.7	162	"	Apr.	106.2	108
"	Jul.	142.7	154	"	Jul.	105.4	100
"	Oct.	137.1	159	"	Oct.	102.8	102
1869	Jan.	135.6	159	1878	Jan.	102.1	99
"	Apr.	132.9	159	"	Apr.	100.6	96
"	Jul.	136.1	158	"	Jul.	100.5	90
"	Oct.	130.2	153	"	Oct.	100.5	94
1870	Jan.	121.3	147				
"	Apr.	113.1	140				
"	Jul.	116.8	132				
"	Oct.	112.8	135				

on page 231 will show this to have been the year of greatest acceleration in borrowing. The fall in the price of gold at this time is the more significant in view of the corner in gold established in New York in September, 1869, by means of which gold was raised temporarily almost 30 points in price.

(5) The most rapid rise in the value of gold after 1867, is in the year October, 1874 to October, 1875. Reference to the table on page 231 will show this to have been the year when borrowing was dwindling to the zero point.

These facts correspond pretty closely with the expectation of theory, which would look for a depression in the value of gold as a result of heavy borrowing operations running through the period 1863-73, and an elevation of its value as a result of diminished borrowing and repayment of loans from 1874 to 1878. Detailed consideration will be given to this movement in the value of gold after the results of Table B (page 239) have been examined. Thus far, only the broad sweep of the movement has been noted. Fluctuations within the major movement will appear from a contrast of the value of gold in the United States in individual years with that of its movement in the same years in England and Germany, and on these minor fluctuations the theory will be brought to bear.

Table B shows movements in the value of gold in the United States in contrast with England and Germany. Concentrating attention on columns 4 and 5, 7 and 8, 10 and 11 as most significant, let us note the following.

(1) In 1866 gold depreciates in the United States. This movement is paralleled, but not equaled, in England and Germany; that is to say, there is a relative depreciation in the United States.

(2) In 1867 and 1868 gold shows a strong tendency to appreciate in the United States with no such pronounced tendency in England or Germany.

(3) In 1869 and 1870 gold depreciates in the United States in both years, while in England it remains stationary and then appreciates, and in Germany it first depreciates and then appreciates by the same amount.

TABLE B. MOVEMENTS IN THE VALUE OF GOLD IN THE UNITED STATES, ENGLAND, AND GERMANY 1862-78

Date	United States					England			Germany		
	1	2	3	4	5	6	7	8	9	10	11
	Price of gold in greenbacks	Medians of prices of 92 wholesale commodities (average of quarterly quotations)	Percentage of commodity prices to price of gold	Yearly percentage appreciation of gold	Yearly percentage depreciation of gold	Medians of prices of wholesale commodities	Yearly percentage appreciation of gold	Yearly percentage depreciation of gold	Medians of prices of wholesale commodities	Yearly percentage appreciation of gold	Yearly percentage depreciation of gold
1862	113.3	102.7	90.6	...	...	96	...	...	99	...	...
1863	145.2	132.7	91.4	...	0.9	94	2.1	...	98	1.0	...
1864	203.3	179.7	88.4	3.4	...	96	...	2.0	100	...	2.0
1865	157.3	184.7	117.4	...	24.7	98	...	2.0	100	...	...
1866	140.9	177.2	125.0	...	6.1	100	...	2.0	104	...	3.9
1867	138.2	161.7	117.0	6.8	...	100	...	...	102	2.0	...
1868	139.7	158.2	113.3	3.3	...	99	1.0	...	103	...	1.0
1869	133.0	157.2	118.2	...	4.2	99	...	...	105	...	1.9
1870	114.9	138.5	120.5	...	1.9	95	4.2	...	103	1.9	...
1871	111.7	130.7	117.0	3.0	...	102	...	6.9	105	...	1.9
1872	112.4	134.0	119.2	...	1.8	107	...	4.7	112	...	6.3
1873	113.8	133.2	117.0	1.9	...	107	...	...	113	...	0.9
1874	111.2	129.7	116.6	0.3	...	103	3.9	...	108	4.6	...
1875	114.9	123.2	107.2	8.8	...	97	6.2	...	108	...	...
1876	111.5	112.5	100.9	6.2	...	94	3.2	...	106	1.9	...
1877	104.8	106.0	101.1	...	0.2	98	...	4.1	106	...	...
1878	100.8	94.7	93.9	7.6	...	88	11.4	...	98	8.2	...

NOTE: Prices of commodities in 1860 are taken as the base = 100.

Gold at this date would also, of course, be equal to 100. The yearly average price of gold is compared with the yearly average of the prices of 92 wholesale commodities (obtained by averaging the quarterly medians of these prices). The percentage of commodity prices to prices of gold is then shown. Columns 4 and 5 show the yearly per cent appreciation or depreciation of gold as compared with the prices of wholesale

commodities. Columns 6-8 and 9-11 give for England and Germany respectively, the medians of relative wholesale prices (prices in 1860 being taken as the base = 100) and the percentage appreciation or depreciation year by year of the value of gold in those countries. Computations are based on data obtained from Mitchell, Gold, Wages, and Prices, pp. 4, 23, 29, and 30.

Summing this up, it appears that there was a relative depreciation in the United States in both years as compared with England and Germany.

(4) In 1871 there is an appreciation in the United States and a depreciation in England and Germany.

(5) In 1872 depreciation is shown in all three countries. This depreciation was more pronounced abroad than at home — a relative appreciation in the United States.

(6) From 1873 to 1878 gold shows a general tendency toward appreciation in all three countries, with the exception of the year 1877. This appreciation is in general more marked in the United States than in England and Germany — a relative appreciation in the United States.

(7) Gold was depressed in value in the United States as compared with Germany from 1866 to 1874 (inclusive) (cf. columns 3 and 9), and elevated from 1875 to 1878. As compared with England (columns 3 and 6) gold was depressed in value in the United States throughout, but shows a relative rise from 1875 onward.

(8) From 1869 to 1873 the movement of the value of gold in the United States and in England is usually in opposite directions, appreciation in the one country being matched by depreciation in the other and *vice versa*. Thus in 1869 and 1870 gold depreciates in the United States, while it remains stationary and then appreciates in England; in 1871 it appreciates in the United States and depreciates in England; in 1872 there is a mutual depreciation, but considerably more prominent in England than in the United States; in 1873 an appreciation in the United States with a stationary status in England.

(9) In this period, 1869–73, the movement of the value of gold in Germany approximates its movement in England, and, as in England, shows an inverse movement to

that in the United States. In one year indeed, 1869, the movement of the value of gold in Germany corresponds to that in the United States, while there was no change at all in its value in England in this year; but in 1873, when gold likewise did not change in value in England, the movement in Germany was in the opposite direction to that in the United States. The movement of gold values in Germany shows as strong a tendency opposite to that prevailing in the United States as does the movement in England at the same time.

Recall now the theory here applicable. The price of gold in the paper basis country will reflect changes in the general situation much more quickly than will the prices of commodities. In studying movements in the value of gold we may, therefore, expect to find effects following quickly upon causes, much more quickly than in the less sensitive merchandise market. Our theory has it that the depreciation in the value of gold which is the immediate effect of heavy borrowing will be followed by a train of consequences (increased commodity imports, decreased commodity exports, and so on) which will have as its own effect an *appreciation* in the value of gold. Borrowing operations of intermittent character would, therefore, be expected to result first in a depreciation of the value of gold and then in an appreciation. As regards continuous, unaccelerated borrowing, equilibrium of payments and equilibrium in the exchanges having been established on the basis of a certain constant annual value of loans placed, gold after its initial depreciation will tend (as a result of the operation of the long-range forces) again to appreciate, provided that the only new borrowing is that which is normal to the new equilibrium. In order that gold should depreciate further after it has reached its level under the new equilibrium, the scale of borrowing must be *increased*.

The actual movement of the premium on gold supports the theoretical expectation. The war years are of little significance, the premium on gold being largely dependent upon the degree of confidence which was felt in the success of the North. Things did not settle down till 1867. Refer now to Table B and note how the depreciation and appreciation of gold values corresponds with the flotation of loans by the United States in the London market as shown in the balance sheet on page 231. Gold appreciated in value in 1867 and 1868 when the long-range effects of the loans inaugurated in and continued since 1863 would be expected to be dominant, the borrowing in 1867 and 1868 being no more than was normal to the new equilibrium. A great increase in the scale of borrowing operations in 1869 and 1870 is reflected, as the theory would expect, in a depreciation in the value of gold in the United States. Borrowing fell off very considerably in 1871 and correspondingly gold appreciated in value in the United States. In 1872 and 1873 loans floated by the United States in Europe increased somewhat in each year, tho not greatly. In 1872 gold depreciated in the United States absolutely but not relatively and in 1873 it appreciated both relatively and absolutely. This last is contrary to the theoretical expectation, tho it is to be said that the increase in borrowing was not great, and the relative appreciation slight, so that the operation of the long-range tendencies making for appreciation may perhaps be presumed to have more than compensated the slight depreciation which would be anticipated from the slightly increased borrowing.

In the period 1867-73 then, our theory on the whole receives confirmation, for not only does the movement in the value of gold in the United States conform in the main to expectation, but in the same period an inverse

movement tends to manifest itself in corresponding years in England and Germany.

Consider now the period 1874-78. In 1874 the theoretical expectation of a relative appreciation in the United States following a decline in borrowing is disappointed. There is an absolute appreciation, but this absolute appreciation is more than matched in England and Germany. The years 1875 and 1876 show both an absolute appreciation in the United States and an appreciation relative to England and Germany, thus conforming to theoretical anticipation; for these years marked respectively the cessation of borrowing and the beginning of repayment. The same relative situation continues in 1877 as between the United States and England (tho not Germany). This corresponds with repayments of loans on an increasing scale. A high appreciation in all three countries is shown in 1878, tho the movement is not as great in the United States as in the European countries, evidence that the long-range forces, as expected at this date, have once again become predominant.

Summing up, it may fairly be said that throughout the period 1867-78 there is a close correspondence between the fluctuations in the value of gold and the amount of borrowing and of repaying by the United States in the European loan market. The loans were apparently a dominating factor in the exchanges, and through the exchanges in determining the value of gold. A major cycle involving depression in the relative value of gold from 1866 to 1873 in the United States as compared with England and Germany, followed by a rising relative value from 1875 to 1878 corresponds with a period of heavy borrowing from 1866 to 1873 and a succeeding period of dwindling loans and the beginning of repayments from 1874 to 1878. This major cycle is marked by

minor fluctuations pretty closely adhering to theoretical expectation, the minor movements in the value of gold in the United States not only corresponding in this way to the demands of theory, but also showing a definite inverse trend to the synchronous movements in England and Germany — strong evidence that the borrowing and lending operations were the cause of the fluctuations.

It should be borne in mind that it is the value of gold in terms of commodities, and not in terms of greenbacks which is shown in column 3 of Table B. Fluctuations in the gold value of the greenback⁴ are therefore irrelevant, except for short periods, during which adjustment of greenback commodity prices to the gold value of the money unit is proceeding. These periods of adjustment may indeed be quite adequate to account for such discrepancies as appear between the facts and theoretical expectation, but the discrepancies will then be due not to the change in the gold value of the currency, but to the fact that such a change, tho followed by a corresponding change in commodity prices, nevertheless takes time to work out its effects. Disregarding this tardiness of adjustment in the United States, which so far as it was effective tended to defeat theoretical expectation, columns 3, 6, and 9 present a fair comparison of the value of gold in terms of commodities in the United States, England, and Germany respectively. Gold fluctuated in value in all three countries but it is the relative not the absolute movement which is significant.

4. The total money in circulation in the United States (of which the major part was inconvertible paper) fluctuated but slightly in the period 1865-78. In 1865 total money in the United States (including gold and silver coin, bullion in the Treasury, United States notes and national and other bank notes) was \$770,398,000. From that time till 1869 there was a slow decline to \$716,471,000, then an upward movement terminating in 1874 at \$806,024,000. A new decline then sets in which goes to \$763,053,000 in 1877 when the tide turns once again toward recovery (Reports of the Comptroller of the Currency).

Finally it will be noted that when in 1867, after the vicissitudes of the war years had passed, and gold had, so to speak, found its level in the United States, albeit for some years a depressed level, the fluctuations in its value (in terms of commodities) in this country were on the whole no greater than in England, and that its value was more stable in Germany than in either the United States or England. This latter fact constitutes further evidence of the effect on the value of gold of the lending operations, for in these operations Germany played a small part, and the value of gold in Germany was therefore affected but indirectly in the course of Germany's trade with the United States and England; whereas its value in England and the United States was affected by the loans directly and with much greater force.

So much with regard to the test of the first stage in the causal sequence laid down in the theory — the movement in the value of gold consequent upon a disturbance in the equilibrium of the international account through the introduction and withdrawal of large loans. Let us now turn to the effect of these loans, operating presumably through fluctuations in the value of gold, upon the course of international merchandise transactions.

IV. FLUCTUATIONS IN THE MOVEMENT OF MERCHANDISE

Previous to the Civil War the normal equilibrium had been one in which merchandise exports (including gold and silver coin and bullion) exceeded imports by an average of \$20,000,000 yearly. This was the case in the six years previous to June 30, 1860. In the six years following, the average was \$24,000,000 yearly the other way. In 1867 the excess of imports mounted to \$60,000,000. It would seem that this last effect must

be attributed to the loans which were then being placed by the United States in the European market. The \$20,000,000 normal excess of exports prior to 1860 would go to pay other items in the international account on which the United States was in those years a debtor. In addition to the falling behind in commodity exports in the six years 1861-66 the earnings of the merchant marine of the United States fell off very greatly. The sale of ships in the war years temporarily sufficed to offset this decline in freight earnings, but the normal excess of \$20,000,000 in exports was wiped out by borrowings.

The \$60,000,000 excess of imports in 1867, following the depreciation in the value of gold (that is, high gold prices) in the United States in 1866, was succeeded by an excess of *exports* in 1868 of \$4,000,000. Reference to page 239 will show an *appreciation* in the value of gold in the United States in 1867 and 1868. It appears that in 1868 the long-range effects of the borrowing of the preceding years were becoming dominant over the immediate effect of new loans: that is to say, the increased supply of goods due to large imports, the money supply meanwhile remaining stationary, was lowering all prices in the United States and thus tending to increase exports; while the diminished supply of goods (due to large exports) and an increased monetary supply (due to imports of gold) were raising prices in Great Britain and tending to decrease exports from that country to this.

In 1869, when borrowing by the United States began on a new and greatly increased scale, the immediate effects of this new borrowing became dominant over the long-range effects of the former loans. Imports in the year ending June 30, 1869 exceeded exports by \$94,000,000. The fall which, as we have seen, took place in

the value of gold in consequence of these loans would lower the yield on such commodities as were dependent upon the value of gold, that is the exports, and so would tend to restrict them; while the rise in the value of gold in Great Britain would lower the prices of imports from that country and so tend to encourage them. Gold continued to rise in value in Great Britain in 1870 and to fall in the United States, and merchandise imports into the United States for the year ending June 30, 1871 greatly exceeded merchandise exports, tho the export of gold from the United States was large enough almost to effect a balance. This export amounted to nearly \$100,000,000 and is easily explained by the relatively high value of gold in Great Britain, or, to put it in another way, its cheapness in the United States.

In the year ending June 30, 1872 merchandise imports into the United States exceeded merchandise exports by about \$182,000,000, loans continuing meanwhile to be placed in large volume; and again in 1873 merchandise imports showed an excess over exports of \$120,000,000. As has been pointed out, the appreciation in the value of gold in the United States which occurred in 1871 and 1872 was contrary to the expectation of theory. It is interesting to note that the merchandise movement did not follow the vagary in gold. After 1873 the check on borrowing was so stringent as to constitute a relative, and about 1875, an absolute cessation; in the latter year repayments began to outrun new loans. Reference to Table B will show an appreciation in gold in the United States in the years 1873-77. A corresponding cessation of the excess of merchandise imports over exports takes place at the same time. Thus for the year ending June 30, 1874, merchandise exports exceed imports by \$19,000,000 and tho in 1875 a slight reversion causes an excess of imports of the same

amount, in the years ending June 30, 1876, 1877, 1878, excesses of merchandise exports of \$80,000,000, \$151,000,000, and \$258,000,000 appear, completely reversing conditions in the early seventies. Accompanying this reversal in merchandise account there was a corresponding reversal in financial account, the large loans of the early period changing to large repayments in the later. All this is in accord with our theory. But whether the loans were the cause of the movement of merchandise or the movement of merchandise was the cause of the loans, which in the latter view would be considered to have been floated for the purpose of extinguishing a merchandise debit already created, is yet to be determined.

So far two results have appeared: (1) that the heavy borrowing of the late sixties and early seventies tended to depress the premium on gold in the United States, and the cessation of these loans and their repayment to elevate that premium; and (2) that there was a correspondence between the flotation of loans and the course of international merchandise transactions. It remains to show the relation of cause and effect between (1) and (2); to show how the depression in the premium on gold as a result of the loans acted upon prices in such a way as to stimulate imports into the United States and check exports from the United States, and thus to effect a balance; to show the converse tendency produced by the cessation of borrowing and the repayment of the loans; and how the change in the course of trade, thus brought about, itself affected prices in such a way as to establish a new equilibrium. This involves an investigation of price phenomena, which will be undertaken in the section to follow.

V. PRICES

A. Price Changes in the United States

The precise object of the inquiry on the course of prices will be to see if any significant differences can be traced between the price movements of commodities exported by the United States, commodities imported into the United States, and commodities both produced and consumed in the United States; differences between these three groups being considered with regard to the course of international trade and an adjustment of equilibrium.⁵

Of the 153 available series of wholesale price quotations by quarters from 1860 to 1880 many are for slightly different forms of the same commodity or for closely related commodities; thus there are three series for flaxseed, five for starch, etc. Professor Mitchell has grouped into a single series the prices of all such closely related commodities and has reduced the 153 series to 92. These 92 series have been here divided into the three classes just mentioned: (a) export commodities, which comprise all those commodities exported by the United States on a scale sufficient to cause their price to be determined in a foreign market; (b) import commodities, which comprise all those commodities the import of which was great enough to be the determining factor in their prices; (c) domestic commodities, which comprise all those commodities the production and consumption of which was carried on almost exclusively at home. Some of the commodities for which price quotations are available, could not well be placed in any one of the three categories. Such were lumber and hides, both

5. Figures for prices in the United States still have been obtained from Professor Mitchell's study. They have been rearranged for the purpose of the present investigation.

imported and exported, and for the present purpose neither fish, flesh, nor fowl. They have therefore been omitted. Of the 92 series, 74 were reasonably amenable to our classification. Export commodities constitute 18 series; import commodities, 14 series; domestic commodities, 42 series.

Prices in 1860 are taken as the standard (100) because an average for the decade or quinquenniad preceding 1862 was not possible, since the data available in many cases do not run previous to 1860; and it was not desirable to take the year 1861, since it was one of marked business depression. 1860 was a normal year, and therefore the prices of that year are taken as giving the best available standard.⁶ All prices are relative to the price for the given commodity in 1860.

Before giving in tabular form the results which come from the regrouping of the price statistics available, let us direct attention once more to the trends that theory would lead us to expect in prices in the United States. They are as follows.

1. Transitional effects.

In Period A, 1866–74 (the period of heavy loans to the United States by Europe).

(1) Low (paper) prices of export commodities.

(2) Gradually falling (paper) prices of import commodities.

(3) Relatively high (paper) prices of domestic commodities.

In Period B, 1874–78 (the period of the cessation of loans floated in Europe by the United States and their partial repayment).

(1) High (paper) prices of export commodities.

6. With regard to commodities subject to seasonal fluctuations in prices the *average* of quarterly quotations for 1860 serves as a base. For the rest the price on *January*, 1860, is usually taken, tho for various reasons some other month of 1860 might have been selected as more representative.

(2) Gradually rising (paper) prices of import commodities.

(3) Relatively low (paper) prices of domestic commodities.

2. Long-range effects.

Period A. Relatively low prices in the United States, as compared with other countries, for all commodities.

Period B. Relatively high prices in the United States, as compared with other countries, for all commodities.

The transitional price movements of Period A — low paper prices of export commodities, gradually falling paper prices of import commodities and, as compared with export and import, high paper prices of domestic commodities — will in Period B tend to be reversed toward high paper prices of export commodities, gradually rising paper prices for import commodities and, as compared with export and import, low paper prices for domestic commodities.

Owing to the vicissitudes in the commercial and financial situation at this time, the long-range effects can scarcely ever be expected to be dominant. They will be operative, and will tend, as have been shown, to neutralize the transitional effects. But the changes in fundamental conditions which occur here at intervals of a few years only will make the transitional effects conspicuous, the long-range effects not having time to dominate the situation before a new disturbing influence appears.

One word further, in explanation of the theoretical expectation with regard to the prices of export and import commodities. The premium on gold having fallen, the (paper) prices received for export commodities immediately fall, since the price of these commodities is set

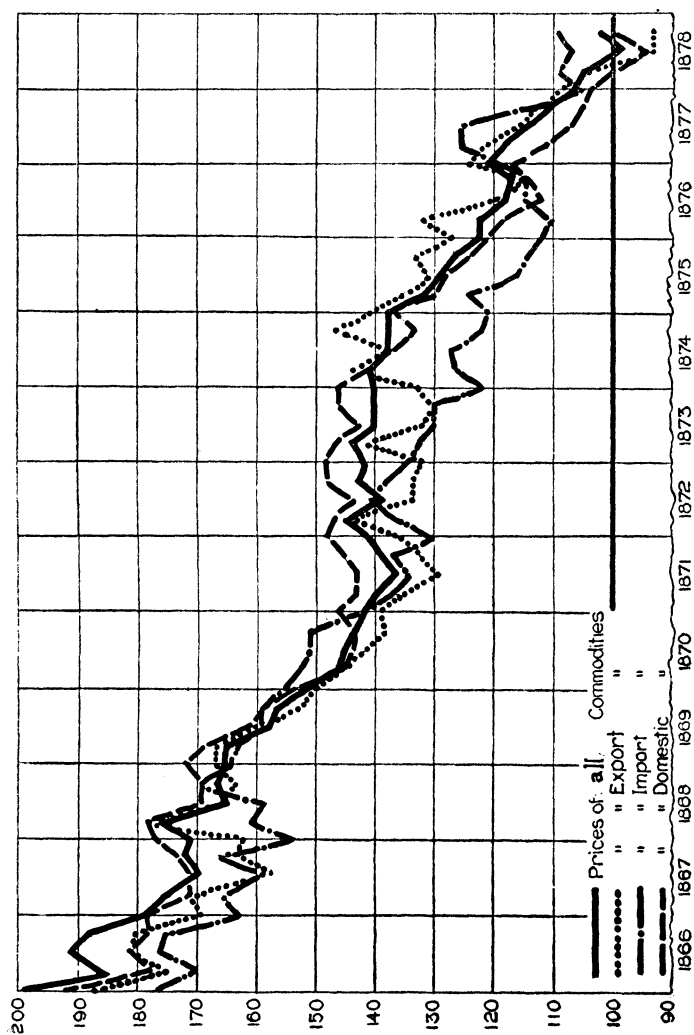
in gold in a foreign market. This fall in the paper price received for exports will tend, it is true, to diminish supply and so cause an upward movement in their prices thereafter. But the competition from other countries supplying the same market will tend to keep the gold price at its former level and thus the paper price low. So far, however, as foreign competition is not operative, there will be a gradual rise in the gold prices of these commodities to a point where the paper price into which the gold price is translated bears the same relation to the paper prices of other commodities as before the decline in the gold premium. As for imports, they are obtained for the same gold price as before the fall in the gold premium and therefore cost less in paper. Since there is no change in the conditions of demand, they can be sold at the same paper price as formerly and importers will for a time get abnormal gains. Competition will however tend to bring their paper prices down. Thus a depreciation in gold will cause the paper prices of exports to fall immediately, after which they may very gradually tend to rise; while imports on the other hand, unaffected immediately, begin quickly to fall in their paper prices and will fall till their paper prices bear the same relation to the paper prices of other commodities as before the fall in the gold premium. A decline in the gold premium, then, will cause the paper prices of exports to fall below the paper prices of commodities in general, the paper prices of import commodities will follow this decline with a lag, the prices of export commodities meanwhile tending slightly to recover. Conditions are of course just reversed when the premium on gold rises.

The table and chart which follow present by quarters, for 1866-78, the arithmetic mean of wholesale prices in general (92 commodities); the arithmetic mean of

ARITHMETIC MEANS OF PRICES OF EXPORT, IMPORT, DOMESTIC AND
GENERAL COMMODITIES

Date		Arithmetic mean of all commodities (92 articles)	Arithmetic mean of 18 export commodities	Arithmetic mean of 14 import commodities	Arithmetic mean of 42 domestic commodities
1866	January	199 ⁷	188	177	192
"	April	186 ⁷	175	170	177
"	July	191 ⁷	181	176	181
"	October	188 ⁷	180	175	178
1867	January	179 ⁷	169	163	178
"	April	175 ⁷	171	165	171
"	July	170	157	159	171
"	October	172	163	166	173
1868	January	171	162	154	177
"	April	176	178	161	178
"	July	165	165	159	169
"	October	166	163	169	169
1869	January	165	167	164	172
"	April	165	167	163	168
"	July	158 ⁷	160	159	161
"	October	157	153	159	159
1870	January	152	150	155	153
"	April	146	146	153	145
"	July	145	142	151	143
"	October	143	138	151	143
1871	January	142	139	142	146
"	April	140	136	137	143
"	July	137	129	134	143
"	October	139	132	137	145
1872	January	141	136	130	148
"	April	145	145	136	147
"	July	139	133	140	143
"	October	143	133	138	148
1873	January	142	132	134	148
"	April	144	141	132	147
"	July	140	132	130	143
"	October	140	130	130	146
1874	January	140	133	122	146
"	April	141	144	126	141
"	July	138	138	127	137
"	October	138	146	122	133
1875	January	138	141	121	137
"	April	132	135	124	130
"	July	129	131	116	128
"	October	127	133	114	124
1876	January	122	127	112	121
"	April	122	132	110	118
"	July	118	119	115	112
"	October	117 ⁷	115	114	114
1877	January	121	124	118	117
"	April	118	121	125	111
"	July	114	115	125	107
"	October	110	112	113	105
1878	January	107	108	105	103
"	April	105	104	109	99
"	July	99	93	107	94
"	October	102	93	109	100

7. In these quarters, chiefly in the years 1866 and 1867, the figures of average general prices for the ninety-two commodities will be found to be higher than the average prices of any of the groups of export, import or domestic commodities; and in one case, July, 1869, they are lower. This is because the three segregated groups together comprise only seventy-four of the ninety-two commodities. The influence of the eighteen omitted commodities accounts for the apparent error. These eighteen commodities, while incapable of being considered domestic commodities pure and simple, are nevertheless of much greater significance in domestic than in foreign trade. If included as domestic commodities they would, in seven of the total of eight cases where the discrepancy occurs, have occasioned changes which would have emphasized the results expected by theory. In one case their inclusion would have had the opposite effect.



wholesale prices of 18 export commodities; the arithmetic mean of wholesale prices of 14 import commodities; and the arithmetic mean of wholesale prices of 42 domestic commodities.

The significant movements shown in these figures are the following:

(1) From the first quarter of 1866 to the first quarter of 1874 (inclusive) the average price of domestic commodities is only twice (October, 1866 and April, 1870, and here the maximum difference is two points) lower than that of export commodities, and from the latter date to the second quarter of 1878 they are never once higher. In three instances, July, 1866, April, 1867, and April, 1868, the average of both types of commodities is the same. The greatest difference between the average prices of the two types is 21 points in October, 1872.

(2) From the first quarter of 1866 to the second quarter of 1876 (inclusive) the average price of domestic commodities is never once lower than the average price of import commodities except for all four quarters of the year 1870; and from the second quarter of 1876 to the concluding quarter of the period studied, 1878, they are never once higher. Note here how the prices of import commodities follow those of export commodities with a lag. The response of import to export movements is not immediate, but a general sympathy is evident. Export commodity prices respond quickly to the changed conditions after 1873, import commodities slowly.

(3) From the first quarter of 1866 till the first quarter of 1874 the average price of *export* commodities is never higher than the average of general prices (all commodities) except in April, 1868, and for the first three quarters of 1869 (the maximum difference in any one of these exceptional cases is two points); and from the second quarter of 1874 till the first quarter of 1878 it

is never lower except in October, 1876, when it falls below the average of general prices by two points.

(4) From the first quarter of 1866 to the second quarter of 1877 the average prices of *import* commodities are never higher than the average of general prices (all commodities) except in October, 1868, July and October, 1869 and all four quarters of 1870; and from the second quarter of 1877 to the end of 1878 they are never lower, except in January of the latter year. Here again the lag in the price movement of imports is evident. The revolution in trade after the panic of 1873 does not work out its full effect on import prices till 1876 or 1877.

(5) From the third quarter of 1867 to the second quarter of 1874 (inclusive) the average price of domestic commodities is never lower than the average of general prices (all commodities) except in April and July, 1870, and is usually four to six points higher. From July, 1874 onward it is never once higher and is usually four to six points lower.

(6) On the curtailment and practical cessation of borrowing by the United States, beginning with 1874, export prices responded almost immediately, shifting permanently in 1874 from a status consistently below the averages of domestic and of general prices to one consistently above it. Import prices responded also, but more slowly, and tho showing an absolute rise in April and July, 1874, while domestic and general prices were falling, and with some checks a relative rise thereafter, it was not until July, 1876 that they became absolutely higher than the prices of domestic commodities, and not until April, 1877 that they became absolutely higher than the average price of all commodities.

(7) While the average prices of export commodities are generally higher absolutely in the first years of large borrowing (the years immediately after the war) than

the average prices of import commodities, yet there is a sharper fall in the prices of exports in these years than in those of imports. In October, 1866, the prices of export and import commodities respectively were 179 and 175, by October, 1867, 163 and 165, and by October, 1868, 163 and 169.

(8) After the panic of 1873 and the cessation of borrowing export prices rise rapidly and then gradually fall, while import prices remain fairly constant with a tendency in 1876 and 1877 to increase.

B. Interpretation of American Prices

All of these results are in correspondence with the theoretical expectation. Loans, as has been pointed out, were severely curtailed by the panic of September, 1873. The complete shift in the relations of export and import prices to those of domestic commodities took place almost immediately, by April, 1874. Previous to that date, during the period of heavy loans floated by the United States in Great Britain, export and import commodity prices, were, consistently with theory, almost without exception lower than domestic commodity prices; after that date and the relative cessation of borrowing, they were, again consistently with theory, almost without exception relatively, and for the most part absolutely, higher. Import prices, both during the period of large borrowing and after its cessation, as theory would expect, responded more slowly than export prices to the changes caused by the introduction of the loans into the international account and by their abstraction from it.

The most striking exception is the year 1870, when import price figures rise above the prices of domestic commodities in all four quarters. It is possible that the

Franco-Prussian War, by setting up a large demand for English exports (i. e., American imports) may account in some measure for this phenomenon.

It will be noted that the April quotations of exports tend to be the highest of the four quarters—a natural result of the fact that the exports were predominantly agricultural products and the April quarter would show an advance in prices over that of any other of the three. On this ground it would be more just to take the yearly average than quarterly prices. If this were done, several of the cases in which fact and theory do not correspond, few as these are, would be removed and a still more ideal correlation would appear.

C. Comparison between Price Movements in the United States and in England

The course of prices in England, so far as they were affected by the movements in exchange on the United States, ought to show a tendency contrary to that which appears in the United States. It is not to be expected that English prices would respond readily to the fluctuations in New York exchange, since Great Britain was on a gold basis and the movements of American exchange would affect only a portion of her total foreign trade. Nevertheless Great Britain's trade with the United States was a considerable fraction of her total foreign commerce. Since exports to, and imports from, the United States would be affected by movements in the rate of exchange, it is to be expected that a price movement would develop in England opposite to that appearing at the same time in the United States, exports and imports contrasting with domestic commodities but in the converse direction.

No such complete quotations of English as of Ameri-

can prices are available. But a series of prices,⁸ derived from the Aldrich Report gives quotations for commodities, twelve of which may be classed as domestic, twenty-six as import, and five export. The last group is obviously too narrow for any significant inferences and there have been added to it the prices of fourteen other export commodities derived from a supplement to Soetbeer's Hamburg prices in the Aldrich Report, purporting to be the London prices of the English exports mentioned. Prices are given by years only.

Taking 1873 as the year of the shift, and drawing at that year the line of separation of Period A from Period B, the theory would expect the following:

In Period A (United States borrowing).

Transitional effects.

- (1) High Prices of Exports. Exporters to the United States will be able to obtain for a time practically the same paper prices as before the disturbance of equilibrium and these translated into gold, which has depreciated, will yield more than formerly. As competition develops among the exporters these prices will tend to drop.
- (2) Rising Prices of Imports. The gold obtained by American sellers for their products when translated into paper yields less than before the depreciation of gold, and unless the British buyers can import from some other country the sellers will gradually be able to raise their prices.

Ultimate effect.

A General Rise in Prices. There will be less goods and an increased amount of money as a result of the shift in the play of international demand consequent upon the change in price levels. This general rise in prices will appear as a relative

rise in the prices of domestic commodities, exports and imports already having risen in price. In Period B (United States ceases borrowing).

Transitional effects.

- (1) Low Prices of Exports. The paper prices obtained for exports to the United States (the market which sets the price) will, owing to the appreciation of gold, yield less than formerly. These prices will gradually tend to rise as the supply is curtailed owing to the low prices obtainable.
- (2) Falling Prices of Imports. Due to competition among sellers in the United States, who as an immediate effect of the appreciation of gold, have on its translation into paper, obtained high prices for their products.

Ultimate effect.

A General Fall in Prices. There will be more goods and less money as a result of the shift in the play of international demand consequent upon the change in price levels. This general fall in prices will appear as a relative fall in the prices of domestic commodities, exports and imports already having fallen.

The arithmetic means of the nineteen export, twenty-six import and twelve domestic commodities, for which English quotations are available, are given on page 261.

The following results may be noted:

In Period A (1866-73).

- (1) Export prices exceed in every year both import and domestic commodity prices.
- (2) In 1866-70 import prices are higher than domestic commodity prices. In 1871-73, however, they are lower.
- (3) From 1866 to 1871 the prices of export commodities fall relatively to both import and domestic commodities.

PRICES IN ENGLAND

Date	Arithmetic average of 19 export commodities	Arithmetic average of 26 import commodities	Arithmetic average of 12 domestic commodities	Sauerbeck's ^a index no. all commodities
1866	124	110	102	106.5
1867	118	106	104	103.9
1868	113	106	103	103.1
1869	114	105	100	101.9
1870	111	103	98	100.3
1871	111	103	104	102.6
1872	126	106	111	112.5
1873	130	103	119	116.6
1874	122	98	110	107.0
1875	116	91	109	100.3
1876	110	90	109	97.5
1877	105	94	107	97.4
1878	100	86	105	91.2

(4) In 1870-73 general prices rise.

In Period B (1874-78).

- (1) Export prices fall *relatively* to domestic prices throughout, but are not lower absolutely till 1877.
- (2) Import prices are lower than domestic prices throughout the period and show, moreover, a relative fall as compared with the prices of domestic commodities.
- (3) General prices fall.

These results are in close consonance with the expectation of the theory. The interpretation of them is:

Period A. (1) The high prices of export commodities are in accordance with the theory as to the immediate effects of borrowing operations, to which export commodities most quickly respond.

(2) Import prices are higher than domestic prices till 1871 when the long-range effects tending to raise all

prices, cause a relative fall in imports as compared with domestic commodities.

(3) The tendency of export prices throughout the transitional period to drop from the high level which is the immediate effect of the borrowing operations is here clearly shown. Short-range effects again become dominant after 1871 as a result of the great new lending operations inaugurated in 1869 and 1870, and prices of export commodities show once more both an absolute and relative appreciation.

(4) The general rise 1870-73 illustrates further the long-range tendency.

Period B. Results (1), (2), (3) are all in consonance with the expectation of theory. The revolution in international finance which began in 1874 is accompanied here as elsewhere by a revolution in prices strictly corroborative of theory.

The course of the price phenomena in England and in the United States ought to be in opposite directions. The following tabular comparison of the arithmetic average prices in the two countries shows how well the theory is verified.

Period A (1866 to end of 1873)

<i>United States (paper standard)</i>	<i>Great Britain (gold standard)</i>
(1) Export commodity prices never above domestic commodity prices except in two quarters, October, 1866, and April, 1870.	(1) Export commodity prices never below domestic commodity prices.
(2) Import commodity prices never above domestic commodity prices except in 1870. ¹	(2) Import commodity prices are above domestic commodity prices until 1870 — but not thereafter. ¹
(3) General prices falling.	(3) General prices rising.

1. Possibly explained as the effect of the Franco-Prussian War.

Period B (1874-81)

United States (paper standard)

- (1) Export commodity prices rise relatively to domestic commodity prices, and from April, 1874 to April, 1878 the former are never below the latter.
- (2) Import commodity prices rise after 1874 relatively to domestic commodity prices and after October, 1876 are never lower than these latter.
- (3) General prices fall. (This is contrary to theory but is probably due to the rapid appreciation of the paper money owing to the prospect of early redemption in gold.)

Great Britain (gold standard)

- (1) Export commodity prices fall relatively to domestic commodity prices, and after 1877 the former are absolutely lower than the latter.
- (2) Import commodity prices fall after 1874 relatively to domestic commodity prices and after that date are never higher than these latter.
- (3) General prices fall.

The contrast in the price movements in the United States and England, the movement in both countries being in confirmation of the theory, furnishes corroborative evidence too strong to be accepted as mere coincidence. The price movement in one country at one time might be in correspondence with theory, tho due to quite extraneous causes; but it is not within the bounds of any probability that in different countries there should be an opposite tendency in prices at the same time, that the conditions should be reversed in both countries at the same time, that all the expectations of theory should be confirmed under these conditions, and the theory yet be wide of the mark.

The opposite tendencies of prices in the United States and England in the period studied would hardly have been possible if both countries had been under a gold régime. For gold would then have moved freely, and freely entered the circulation of both countries, and the

prices of transportable commodities could not have varied greatly in the two countries as compared with their prices before the gold movement took place.

Moreover, with both countries under a gold régime, when equilibrium had been disturbed and gold had flowed to country A from country B, exports of A would tend to rise in price, owing to the increased stock of gold in A, while imports from B would tend to fall in price, owing to the decreased stock of gold in B; that is, the movement of export and import prices in A (and in B, too) would be divergent. But in the present case the movement of export and import prices has been in the same direction (tho in different degrees), since both exports and imports are paid for in gold and rise or fall in their paper prices with the appreciation or depreciation of gold. The contrast is then, not between exports and imports — their prices move together — but between export and import commodities on the one side and domestic commodities on the other.

With both countries under a gold régime, when exchanges had been disturbed sufficiently to induce a flow of gold from one country to the other, the price level would be changed, no doubt unevenly, but in no such way as to make a classification along lines of export, import, and domestic commodities likely to produce any significant results. The adjustment to equilibrium would be reached by a movement in general prices which would tend to carry *every* price in either country in the same direction.

With one country upon a paper basis the readjustment is effected through the exchanges solely, at least so far as the paper-using country is concerned, since for it, the movement of gold cannot affect prices. And it is effected by a movement of prices which discriminates between classes of commodities. The prices of commodi-

ties which enter into international trade are affected first and foremost, and the course of the trade itself is controlled thereby. This direct effect upon the prices of commodities which enter into international trade, with no direct effect upon other commodities, is a more efficient regulator of international trade toward an equilibrium than the irregular and widely distributed movement of prices to be expected with both countries under a gold régime could possibly be, and so a quicker adjustment is likely to be reached in the international trade of a country which is on a paper than in that of one on a gold basis, assuming, of course, that no new disturbing factor enters the situation.

VI. WAGES

One further aspect of the subject remains to be treated. This is the effect of the shifts in prices upon the production of commodities. It is an essential part of the theory that, under the conditions assumed, the movements in prices in the paper-using country tend to divert production from an industry producing a commodity for export to one producing a commodity consumed at home, or *vice versa*; that export industries will become relatively unprosperous when the course of international trade and the movement of the exchanges causes a depreciation in gold, and relatively prosperous when gold appreciates.

Thus in Period A (1866-74) the theory would expect exporting industries to be unprosperous as compared with industries producing commodities for home consumption. A movement of capital and labor out of export industries will set in, while industries producing commodities for domestic consumption will receive accessions of labor and capital. This movement will

continue until the expectation of profit is as great in the one type of industry as in the other. So the theory would lead us to expect relatively unprosperous exporting industries in Period A; and in Period B when borrowing had ceased, and gold was, as a consequence, appreciating relatively to the prices of commodities in general, a prosperous status for export industries as compared with industries producing commodities for domestic consumption.

Probably the best test of the relative prosperity of industries lies in the movement of wages. Tho wages move less freely than prices—wages show some measure of retardation—yet where an industry is prosperous the pressure for an increase of wages is almost certain to be effective in raising them. On the other hand, where an industry is unprosperous, the resistance to such pressure will be indefinitely greater and wages either will fall or, if they rise, will rise to a less degree than in the prosperous industries.

It is true that the prosperity or depression of an industry will find its reflection in profits as well as in wages, or perhaps, indeed, earlier in profits than in wages. Nevertheless relative wages are the better material for a test of the comparative prosperity of industries for two reasons. (1) Wages for any given sort of labor are uniform throughout the industry, whereas the profits of the various firms which compose the industry will vary from nothing to all to an indefinitely great amount. Hence "normal" profit for the industry at the given time is practically impossible to determine. (2) There are no statistics of profits at this period which are of any value.

Taking relative wages then, as the best test of the comparative prosperity of industries, statistics of wages have been computed from the series of wage schedules

given in Mitchell's *Gold, Wages, and Prices*. Professor Mitchell drew on two sources for these data: (1) the compilation of the Bureau of Labor for the Senate Committee which prepared the Aldrich Report in 1892, and (2) the compilation made between 1880 and 1882 by Mr. Joseph D. Weeks for the Tenth Census. These sources, treated separately by Professor Mitchell, may be made to supplement one another for the present purpose. The Aldrich Report gives wage data in twenty-one industries, but of these, twelve industries are so meagerly represented that Professor Mitchell regards the data as too scanty to promise significant results. From the Aldrich Report statistics the present study takes into consideration only eight industries, omitting, in addition to Professor Mitchell's twelve, that of cotton gingham, which seemed to offer nothing very different from cotton textiles at large. The Weeks Report covers thirty industries in all, in nine of which there are sufficient data to give significant figures of relative wages. Two of these, cotton textiles and woolen textiles, correspond to industries also covered by the statistics given in the Aldrich Report, the other eight being represented in that report either inadequately or not at all. Of the two wage series which occur in both reports those of the Weeks Report have been preferred since they are based on much more comprehensive data. There are then six industries represented from the Aldrich Report and nine from the Weeks Report, fifteen in all, as follows: Building Trades, Carriages, City Public Works, Cotton Textiles, Furniture, Glass, Illuminating Gas, Metals, Paper, Pottery, Railroads, Sawmills, Stone, Tanneries, and Woolen Textiles.

These industries are divided into two classes:

Class A — Industries producing for the domestic market, including the Building Trades, Carriages, City Public Works, Illuminating Gas, Railroads, Saw-mills, and Stone.

Class B — Industries producing for export, or industries subject to competition from abroad, and therefore having the prices of their products in large degree determined by the value of gold in terms of paper. This group includes Cotton Textiles, Furniture, Glass, Metals, Paper, Pottery, Tanneries, and Woolen Textiles. To this group has been added Farm Labor, for which the wages rates, tho not so full as those of the manufacturing industries here given, are yet of such significance for the present inquiry that they ought to be included.

In forming the tables of the mean wage in each industry, the wages for the several occupations in each industry are averaged, the wage in 1860 in all cases being taken as the base = 100.

Arithmetic means of wages grouped into the two classes indicated above are:

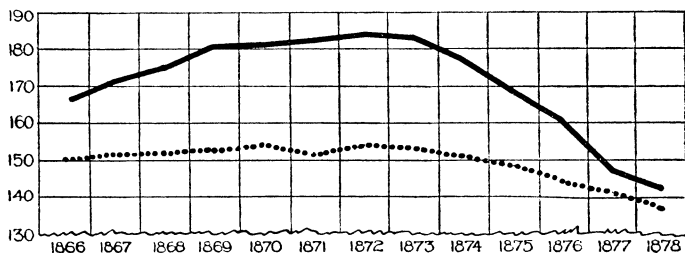
RELATIVE WAGES ²

Year	Class A industries (producing commodities consumed at home and not subject to foreign competition)	Class B industries (producing commodities for export or subject to foreign competition)	Year	Class A industries	Class B industries
1866	165	150	1873	182	153
1867	171	151	1874	177	151
1868	174	151	1875	168	148
1869	180	152	1876	160	144
1870	181	154	1877	147	141
1871	182	152	1878	142	137
1872	183	154			

2. In paper money.

The appended chart shows clearly the difference of movement in the two classes.

— CLASS A. Wages in industries producing without foreign competition for the home market. Arithmetic average.
 CLASS B. Wages in industries producing for foreign market, or subject to foreign competition in the home market. Arithmetic average.



We may note: (1) in the period 1866–73 wages are consistently higher in Class A industries than in Class B, and they rise from an average of 165 in 1866 to 183 in 1872, or a maximum spread of 18 points. Wages also rise in Class B industries, but very slightly, the maximum spread being only 4 points from a minimum of 150 in 1866 to a maximum of 154 in 1872. This indicates for this period a high and an increasing degree of prosperity in Class A industries as compared with industries in Class B, and is therefore in conformity with the expectation of theory.

(2) In the period 1874–78 wages fall in both Class A and Class B industries, but the relative decline in Class A is much greater than in Class B; the fall in Class A is from 182 at the end of 1873 to 142 at the end of 1878, or 40 points, while in Class B it is from 153 to 137, or 16 points, indicating a relative prosperity in Class B industries.

Contrasting Class A with Class B industries, the excess in the wage level in Class A industries year by year is as follows:

Year		Year	
1866.....	15	1873.....	29
1867.....	20	1874.....	26
1868.....	23	1875.....	20
1869.....	28	1876.....	16
1870.....	27	1877.....	6
1871.....	30	1878.....	5
1872.....	29		

The rising prosperity of Class A industries in the period 1866-73 and their declining prosperity in the period 1874-78 is clearly evident.

Turning now to individual industries, the table on page 271 presents the arithmetic mean of wages in each separate industry.

Wages rise highest in Period A in the Illuminating Gas, Saw mill, Stone, City Public Works, and Building industries, while they are lowest in the Farming, Woolen Textiles, and Metal industries. The former industries are all in Class A, the latter all in Class B. Every one of the Class A industries, except Carriages, shows wage levels surpassing that of any industry in Class B, and most of the Class A industry wages are consistently higher than those of Class B by a very considerable amount. In Period B, wages in the Pottery and Glass industries, both of Class B, surpass those of any Class A industry except Illuminating Gas, and wages in the Class B industries, Tanneries, Cotton Textiles, and Furniture surpass those of any Class A industries except Illuminating Gas and Saw mills. Farm labor and Furniture industry wages, however, remain low throughout. On the whole these results offer strong evidence of the relative prosperity in Period A of the industries producing for home consumption and their relative unprosperity in Period B. The theory thus receives further confirmation. The industries most affected by the fall in the gold premium consequent

WAGES

CLASS A. INDUSTRIES PRODUCING WITHOUT FOREIGN COMPETITION FOR THE HOME MARKET
 CLASS B. INDUSTRIES PRODUCING FOR THE FOREIGN MARKET, OR SUBJECT TO FOREIGN COMPETITION IN THE HOME MARKET

Year	Arithmetic av. class A	Saw mills	Building, trailes	City pub. works	Illu. min. at. gas	Rail. roads	Stone	Half-year	Year	Arithmetic av. class B	Cotton textiles	Farm labor	Furniture	Glass	Paper	Pottery	Tanneries	Woolen textiles	Metals	Half-year
1866	165	153	165	162	181	183	138	172	Jan.	1866	150	149	150	133	152	140	155	162	150	155 Jan.
1867	171	155	171	174	186	183	155	168	Jan.	1867	151	155	148	136	151	143	155	158	148	157 July
1868	174	156	168	186	188	185	160	162	July	1868	151	151	146	138	151	143	158	158	149	158 Jan.
1869	180	156	167	195	192	195	156	196	Jan.	1869	152	152	144	138	152	143	168	158	150	159 Jan.
1870	181	156	164	192	210	192	165	200	Jan.	1870	154	155	141	137	160	148	167	163	154	160 Jan.
1871	182	158	167	188	202	189	158	201	July	1871	152	159	138	139	161	144	164	157	150	161 Jan.
1872	183	158	171	185	198	196	167	186	Jan.	1872	154	161	135	138	161	152	166	158	153	158 Jan.
1873	182	157	173	190	201	205	171	203	July	1873	153	164	132	136	160	146	166	161	152	161 July
1874	177	151	167	186	195	204	162	198	July	1874	151	159	130	130	158	144	165	161	154	161 Jan.
1875	168	147	160	182	193	200	160	180	July	1875	148	157	128	128	157	143	163	158	152	159 July
1876	160	144	156	170	181	182	158	161	July	1876	144	150	119	126	155	142	163	150	148	151 Jan.
1877	147	139	150	160	190	193	150	169	Jan.	1877	141	146	110	123	154	139	168	146	145	146 Jan.
1878	142	139	147	143	150	184	147	140	Jan.	1878	137	143	101	124	150	132	158	146	143	141 July
				140	140	165	142	130	July											135 Jan.
				141	143	169	139	133	Jan.											133 July
				137	134	156	138	130	July											132 Jan.
																				131 July

The wage schedules in the Aldrich Report are given semi-annually while those in the Weeks Report are by years only. In the compilation of averages this arrangement has been preserved. For an average of all industries in either group a single yearly figure was obtained by averaging the half-yearly quotations where they occurred, and taking the figure thus obtained as the yearly average wage for that industry.

Statistics for wages of Farm Labor were not available year by year until 1873. Previous to that date scattered statistics only could be secured and these at intervals of several years. It has been assumed that the rise or fall in these wages between one quotation and the next was evenly distributed over the interval between them. This furnishes, of course, a very rough estimate, and the quotations of wages for Farm Labor before 1873 are of but slight value.

upon the large loans placed in Europe in the late sixties and early seventies show by their wage level a relatively adverse position at that time, while in the period when loans ceased and gold as a result appreciated, their relative wage level rises, indicating their prosperity.

VII. SUMMARY

To conclude, the large borrowing operations of the United States inaugurated in the later sixties appeared as an important factor in disturbance of the normal course of trade. The theory here under scrutiny alleges that loans will affect the exchanges, and through them, the gold premium, as the first step in the adjustment process. Hence the movement of the gold premium in the United States was inquired into and contrasted with the value of gold in England and Germany. It appears in the main that the premium on gold in the United States was depressed and elevated according to the expectation of theory. It appears also that an interesting and significant contrast developed between the movement of the value of gold in the United States on the one hand, and in England and Germany on the other; a contrast corroborative of the theory.

The next consideration was that of the movement of trade, and it was found that trade followed the loans, the United States importing largely, pursuant to the placing of loans, and showing an excess of exports when the loans ceased to be floated.

How these trade phenomena were brought about was then tested by an investigation of price movements along the lines suggested by the theory, which was again confirmed by the fluctuations in the prices of export, import and domestic commodities in the manner pre-

dicted, the contrast between prices in England and the United States being specially noteworthy.

Further confirmation was given by the results of the inquiry into wages. These were high in those industries which the theory would expect to be prosperous, and low in those which it would expect to find in an adverse situation. On the whole the theory receives substantial verification.

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